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EXAMINER

PSITOS, ARISTOTELIS M

ART UNIT PAPER NUMBER

2627

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/010,721

Applicant(s)

KOMMA ET AL.

Examiner

Aristotelis M. Psitos

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 30 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16, 18, 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/30/06 has been entered.

Claims 16, 18 and 19 remain active in the present application.

### ***Specification***

1. The amendment filed 3/30/06 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

“... a diffraction means provided as a separate element from the diffraction grating body, the diffraction means being arranged for diffracting a light beam reflected from the optical disk ...”.

However, the examiner interprets this as the hologram element 4 in figure 11 and as such is NOT separate from the diffraction grating body.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 16, 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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In particular, independent claims 16 and 19 have been amended to include a:

“... a diffraction means provided as a separate element from the diffraction grating body, the diffraction means being arranged for diffracting a light beam reflected from the optical disk ...” .

However, the examiner interprets this as the hologram element 4 in figure 11 and as such is NOT separate from the diffraction grating body.

As far as the claims recite positive limitations, and as analyzed below the following art rejections are taken.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 7 is rejected under 35 U.S.C. 103 (a) as being anticipated/obvious over Tanabe et al – WO97/13245 further considered with the acknowledged prior art and further considered with Funato. The examiner is supplying the US equivalent document US Pat. # 6118586 as the English translation thereof.

The following analysis is made:

Claim 16

Tanabe et al

An optical pick-up comprising:

a diffraction grating body, comprising

see title/abstract

a base material, and a relief diffraction grating

formed on the base material, wherein

the diffraction grating body is formed of a

single base material, and

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the refractive index  $n_1$  of the single base material is 1.9  
or more;

see material as defined

in either col. 1 lines 40-43, or  
col 8, lines 30-34.

the diffraction grating is formed of a concave portion  
and a convex portion having rectangular shaped cross  
sections, and the level difference  $h$  between the  
concave portion and the convex portion  
satisfies the following relationship

see below

$$h = \lambda_1 / (n_1 - 1)$$

present – see below

and the difference in an optical path between  
the concave portion and the convex  
portion is set to correspond to one wavelength  
with respect to the wavelength  $\lambda_1$ , and  
a material of the base material is at least one  
material selected from  
the group consisting of  
Ta<sub>2</sub>O<sub>5</sub>, TiO<sub>2</sub>, ZrO<sub>2</sub>, Nb<sub>2</sub>O<sub>3</sub>, ZnS, LiNbO<sub>2</sub> and LiTaO<sub>3</sub>;

material(s) from the group  
present.

a first semiconductor laser light source for emitting  
a light beam with wavelength  $\lambda_1$ ;

see figure 6, and its  
description element 41

a second semiconductor laser light source for emitting  
a light beam with wavelength  $\lambda_2$ ;

present in the describe prior art figure 14.

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an optical system having an optical disk, the optical system for receiving the light beam with the wavelength  $\lambda_1$  and the light beam with wavelength  $\lambda_2$  and converging the light beam onto a microspot on the optical disk;

optical system has an optical disk in the base reference see fig. 6 element 46

a diffraction means provided as a separate element from the diffraction grating body, the diffraction means being arranged for diffracting a light beam reflected from the optical disk;

see above 112 problem element 43 in figure. 6

a photodetector having a photo detecting portion for receiving the diffracted light diffracted by the diffraction means to output electrical signals in accordance with the amount of the diffracted light; wherein

detector element in fig. 6 see below

the diffraction grating body receives the light beam  $\lambda_2$  and transmits a main beam and generates sub-beams that are  $\pm$  first order diffracted light; and

the photo detecting portion comprises a photo detecting portion PDO for receiving a  $\pm$  first order diffracted light from the diffraction means, and a distance  $d_1$  between the center of the photo detecting portion PDO of the light emitting spot of the first semiconductor laser and a distance  $d_2$  between

figures 4a and b, starting at col. 11 line 45

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the center of the photo detecting portion PDO and the light emitting spot of the second semiconductor laser light source substantially satisfy the following relationship:

$$\lambda_1/\lambda_2 = d_1/d_2.$$

In the above analysis, the patent to Tanabe et al is drawn to an optical head/device and system – see figure 6 for instance for the system elements, wherein the base material is from an appropriately selected material, either as discussed at col. 1 lines 40-43 or col. 8 lines 30-34. Hence, the formulaic description is present, as is the refractive value. With respect to the “concave” and “convex” portions, the examiner interprets such as defining the pattern in Tanabe et al. Furthermore, such is known by the the acknowledged prior art – figure 15b as teaching such a well-known pattern.

It would have been obvious to modify the base system of Tanabe et al with the recognized pattern, motivation is to use existing patterns and increase the options of the pattern and hence reduce the requirement of manufacturing by using existing techniques.

With respect to the secondary light source, as acknowledged by applicants such are known in the prior art.

It would have been obvious to modify the base system as relied upon in paragraph 4 so as to provide for separate light semiconductor sources as opposed to the single source, motivation is to increase the reliability of the system, i.e., use of two light sources reliability as opposed to a single light source.

Alternatively, It would have been obvious to modify the system 3 with the teaching from the acknowledged prior art of figure 14 so as to use the overall Tanabe et al optical device in established optical systems and hence increase the flexibility of such a device by including both cd and dvd formatted discs as the interactive record medium.

With respect to the photodetector limitations, such is further discussed in the Funato reference, see the above noted passages in the disclosure thereof.

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It would have been obvious to modify the base system as relied upon with respect to claim 16 as stated in paragraph 5 above with the teaching as found in Funato, motivation is as discussed in Funato as well as to reduce the overall footprint of the integrated package.

With respect to the limitations of claim 18, such is present in the acknowledged prior art, hence use of such, so as to reduce the overall footprint of the device is considered met.

With respect to claim 19, this parallels claim 16, with the additional limitations of the appropriate control elements, i.e., the focusing, tracking, information detecting and moving & rotating means.

Again, such are known from the acknowledged prior art, and use thereof in this environment with the above modified system is obvious for their inherent functions of an optical playback device.

#### ***Response to Arguments***

Applicant's arguments filed 3/30/06 have been fully considered but they are not persuasive.

The examiner relies upon the above combination and the discussion/description of figures 7-10 in Funato. Applicants' arguments focus on the formulaic expression claimed and that such is completely different. The examiner does not agree. As recited there is a relationship between the photo detector and the light sources such that this relationship

"... substantially satisfy the following relationship:

$$\lambda_1 / \lambda_2 = d_1 / d_2."$$

Since the disclosed wavelengths and the wavelengths in the above references are virtually identical, the relationship must "substantially satisfy such".

With respect to the second argument, again, since the base material as disclosed and claimed in present in the above references, and the wavelength is also present, the formulaic description with respect to  $h = \lambda_1 / (n_1 - 1)$  must inherently be present, else something not claimed yields such a distinction.

4. Claims 16, 18 and 19 are rejected under 35 U.S.C. 103 (a) as being obvious over Katsuma considered with the acknowledged prior art (figures 14/15) and all further considered with Shimano et al and all further considered with Funato.



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As interpreted by the examiner, the Katsuma reference describes a diffraction filter used in the optical environment – see figure 8 therein. The relief pattern of the diffraction grating – is made of a single body material – as disclosed with respect to example 1 as found in col. 7 starting at lines 51, TiO<sub>2</sub>.

Furthermore, with respect to the concave and convex pattern, such a relief pattern is acknowledge by applicants in their description of figure 15.

Shimano et al discusses the ability of lithium niobate as the appropriate material.

As further defined by claim, such a material being found, the refractive index is met. With respect to the height, see the description of col. 2, lines 21 plus with respect to the various formulas recited yielding the height requirement.

Figure 8 of the Katsuma reference further describes the remaining elements recites.

It would have been obvious to modify the base system of Katsuma with the above additional teachings from the acknowledged prior art to yield a relief pattern as described known in the prior art – motivation is to use existing relief patterns in reducing manufacturing processes/time frames etc.

Furthermore, as taught by the Shimano et al reference, the use of such materials is present/previously done, and again motivation would be to reduce manufacturing processes.

With respect to the photo detector and arrangement thereof, such is found in Funato.

In the Funato reference, see the description discussion with respect to figures 4a and b, starting at col. 11 line 45.

It would have been obvious to modify the base systems as combined above with the further teaching as found in Funato, motivation is as discussed in Funato as well as to reduce the overall footprint of the integrated package.

### ***Response to Arguments***

Applicant's arguments filed 3/30/06 have been fully considered but they are not persuasive.

The examiner concludes that since the base material has been found, the diffraction/phase difference must inherently be present, and with respect to the relationship between the photo detector and the light sources, such are present – see the above analysis/rebuttal in paragraph 3.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-F: 6:00 - 2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aristotelis M Psitos  
Primary Examiner  
Art Unit 2627



AMP